

University of Groningen

## **Streptococcus pneumoniae interactions with endothelial cells leading to invasive pneumococcal disease**

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## Stellingen

Behorende bij het proefschrift

### ***Streptococcus pneumoniae* interactions with endothelial cells leading to invasive pneumococcal disease"**

- "A PhD degree does not turn a person into a researcher, but the universe inside the mind of a person makes this person a researcher"

**My wonderful grandma Clelia**

*"Un dottorato di ricerca non fa di una persona un ricercatore, ma è l'universo nella mente di ciascuno di noi a renderci tutti ricercatori"*

**La mia meravigliosa nonna Clelia**

- "Biology gives you a brain. Life turns it into a mind"

*"La biologia ti dona un cervello. La vita lo trasforma in una mente"*

**Jeffrey Eugenides**

- "The local immune system of the brain is activated by the presence of *S. pneumoniae* even before meningitis develops"

**This thesis, Chapter 2**

- "Neither the *in vitro* nor the *in vivo* studies in the published scientific literature provide unequivocal evidence that *S. pneumoniae* anchors to the PAFR *in vivo*"

**This thesis, Chapter 3**

- "PAFR, which facilitates pneumococcal adhesion to brain endothelial cells, does not co-localize with *S. pneumoniae* *in vivo* and likely has no physical interaction with this bacterium *in vivo*"

**This thesis, Chapter 4**

- "It seems likely that *S. pneumoniae* in the blood stream can bind to PECAM-1 expressed by brain microvascular endothelial cells, and that PECAM-1 forms a double receptor with pIgR on the plasma membrane of endothelial cells for *S. pneumoniae* adhesion."

**This thesis, Chapter 5**

- "Only the stupid needs order, the genius controls the chaos"

*"Solo lo stupido ha bisogno di ordine, il genio controlla il caos"*

**A. Einstein**

- "By knowing the pathways by which *S. pneumoniae* adheres to endothelial cells, it becomes possible to interfere with these mechanisms and to develop strategies for preventing and curing pneumococcal meningitis"

**This thesis, Chapter 6**

- "The fun of scientific research is also to find always new borders to overcome, to build the most powerful tools of investigation, the most complex theories, to try always to move forward and to know that we get nearer and nearer to understanding the reality, without never arriving to understand it completely."

*"Il divertimento della ricerca scientifica è anche trovare sempre altre frontiere da superare, costruire mezzi più potenti d'indagine, teorie più complesse, cercare sempre di progredire pur sapendo che probabilmente ci si avvicinerà sempre di più a comprendere la realtà, senza arrivare mai a capirla completamente".*

**Margherita Hack, interview by Flavia Farina / Margherita Hack, intervista di Flavia Farina**